

## First description of the nest and eggs of the Black Grasswren *Amytornis housei* (Milligan) with notes on breeding

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**Abstract** – Details of ten nests and four clutches of eggs are given for the Black Grasswren (*Amytornis housei*). Breeding occurs mainly during the wet season from December to March. Nests are large dome or oval shaped structures with a spout like entrance built in clumps of *Triodia*. Two eggs (rarely one) form the clutch and only the female incubates and broods. Additional notes are also provided on the distribution and ecological status of this endemic Western Australian species.

### INTRODUCTION

The Black Grasswren *Amytornis housei* was first described by Milligan in 1902 from specimens collected by Dr F.M. House during the Brockman surveying expedition to west Kimberley, Western Australia, in 1901. The species was not recorded again until 1968 when further specimens were collected at Manning Creek and on the Barnett River, west Kimberley, by the Fifth Harold Hall Australian Expedition (Freeman 1970). Since that time the Western Australian Museum, often in conjunction with other State departments and naturalists, has carried out extensive survey work in north-west Kimberley and the distribution and status of this species has been more clearly defined.

Although moderately common to common throughout its range almost nothing was known about its nidification with its eggs still undescribed. This was largely due to the fact that it breeds during the wet seasons in a very remote, inaccessible and rugged part of the State. This region of north-west Kimberley is so rugged and trackless that the composition and distribution of its fauna have only been fully known in the last 25 years. The only previous indication of breeding for the Black Grasswren comes from a female with a hard shelled egg in the oviduct collected by R.E. Johnstone at Crystal Head (14°28'S, 125°51'E) on 25 January 1973 and an empty new nest found at the same time. This nest was dome shaped about 20 cm long, 15 cm wide with an entrance hole about the centre of the nest. It was constructed of *Triodia* and grass and concealed in a large *Triodia* clump in an area of sandstone-spinifex. A fledgling just able to fly was also caught by hand at Surveyors Pool by Johnstone on 11 February 1973 and another just out of nest was photographed on a tributary of the Glenelg River by K. Coate on 23 May 1988.

Based on these dates as an indication of breeding, a short expedition to the Mitchell Plateau, was undertaken and funded by Nicholas Kolichis in February 1998 specifically to find nests and eggs of this species. On 2 February 1998 a team of ornithologists namely: N. Kolichis, R.E. Johnstone, P. Stone, K. Oakley, A. Oakley and T. Bush, flew in a large fixed winged aircraft and helicopter from Kununurra to Mitchell Plateau airstrip. From this airstrip people and equipment were ferried by helicopter to a base camp on Mertens Creek at 14°14'S, 125°42'E. The Mitchell Plateau area had received a considerable amount of rain (200–400 mm) from a large tropical low pressure system (ex tropical cyclone Les) that remained over the area for three days prior to our visit. Apart from flooded creeks caused by the heavy rain there appeared to be little wind or other damage to the vegetation. Much of the region had been burnt the previous year.

### DISTRIBUTION, STATUS AND HABITAT

The Black Grasswren is confined to the subhumid north-west Kimberley, of Western Australia, from Admiralty Gulf (Crystal Head), south through the Mitchell Plateau (vicinity of Surveyors Pool, Mitchell River Falls) and Prince Regent River to Charnley River and Manning Creek (at 8 km SSW and 24 km S of Joint Hill (Storr 1980) (Figure 1). It is common to moderately common in pairs and small parties (up to eight). Mainly in pairs and family parties during the breeding season and larger groups when not breeding. Its habitat is mainly heavily dissected sandstone areas, immensely rugged with massive boulders forming the most remarkable shapes, lying in tiered terraces cut through by deep and narrow fault lines and in parts

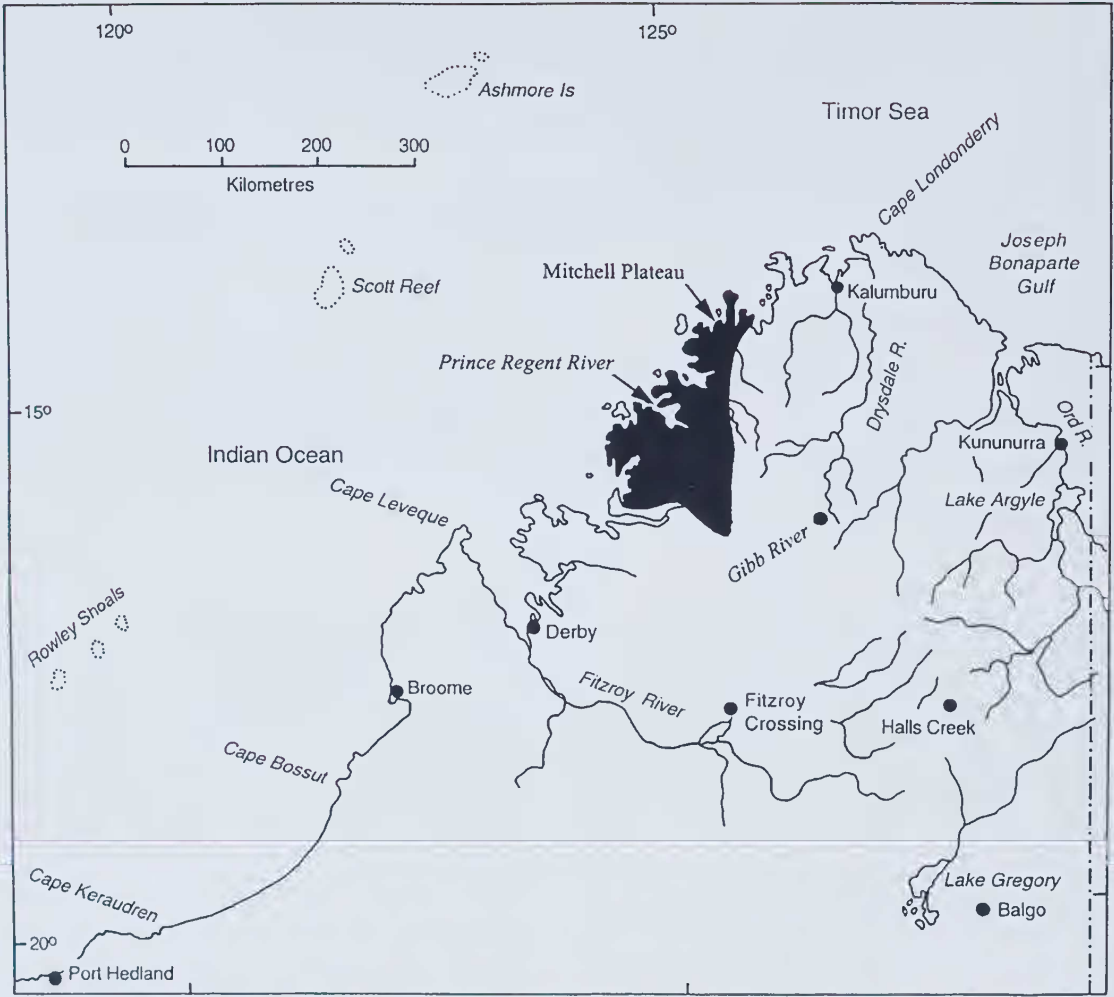


Figure 1 Map of Kimberley showing the distribution of Black Grasswren, *Amytornis housei*.

overgrown with tropical vegetation. The vegetation ranges from low open woodland, tall shrubland or tall open shrubland. Trees and shrubs include *Eucalyptus miniata*, *E. brachyandra*, *E. hebertiana*, bloodwoods (*Corymbia* spp.), *Owenia vernicosa*, *Acacia* spp. (including *F. virens* var. *sublaeucolata* and *F. platypoda*), *Brachychiton* spp., *Verticordia cunninghamii* and *Xanthostemon paradoxus*. The ground cover is mainly spinifex *Triodia pungens*. See Figure 2.

#### DISCOVERY OF NESTS

Despite the inclement weather just prior to our arrival, breeding was well under way with most birds in pairs and some with fledged young. Pairs were vocal especially in early morning with males often calling from a high vantage point. Territorial disputes between two or occasionally up to four

pairs were often observed, and birds reacted quickly during the day to playback calls. Nests were located by following birds, by searching all spinifex clumps where pairs had been seen or heard and by disturbing or flushing a sitting female. Once the first nest had been found the immediate area of about 3 km<sup>2</sup> was searched for nests. A total of five days were spent in the area and ten nests were found including four complete and ready for eggs, one with female sitting, four with eggs and one with a feathered nestling. Also two partly built nests and a number of old nests were located. Details of ten nests are given below in the order they were found.

Nest 1. Found on 2 February 1998 above Mertens Falls. Female flushed from nest. The nest site was in the top, centre, of a large clump of *Triodia pungens* growing between two sandstone boulders. It was 400 mm above ground in the outer spines and was roughly globular, slightly flattened vertically, with



Figure 2 Typical habitat of Black Grasswren near Mitchell River Falls.

a large circular entrance hole and a spout like landing at base of entrance. It measured 195–200 mm long and 130 mm wide (externally), the inner nest chamber 160 mm wide and 70 mm deep (egg cavity); entrance 70 x 60 mm (facing west); and landing of numerous dry *Triodia* stems up to 140 mm long were bound into the base of the nest. The nest was constructed mainly of dry *Triodia* stems, also dry leaves of *Acacia* and *Eucalyptus* and pieces of bark and lined with fine pieces of *Triodia* and rootlets. A female was observed at or near this nest on most days however she had not laid by 8 February.

**Nest 2.** WAM A 26719. Found on 2 February about 100 m from nest 1 after a pair of birds were observed on a steep sandstone scree slope. This nest appeared recently used judging from egg fragments and disturbed nest lining. It was situated deep into a large clump of *Triodia pungeus* growing between sandstone boulders. It resembled a flattened dome, placed 300 mm above ground at about a 45° angle within the *Triodia* and had a short awning over the entrance. *Triodia* stems at the entrance had been bent over forming a landing. This nest measured 240 mm long, 130 mm wide, entrance circular 55 mm diameter (facing NW), and inner chamber 130 mm wide and ca. 50 mm deep (egg cavity). It was

made mainly of dry *Triodia* stems, dry leaves (mostly *Eucalyptus*) also pieces of bark, and lined with fine *Triodia* stems.

**Nest 3.** WAM A 26694. Found on 3 February near Mitchell River Falls. Nest with a single feathered nestling was located in a dense clump of *Triodia pungeus* 1 m high, growing in a sandstone gutter about 4 m deep. The nestling was making a begging 'seeper' call from the nest. This nest was built about 0.5 m up in centre of *Triodia* clump. It was very damp probably from run-off from the sandstone walls on each side. The nest shape and materials were similar to those of nests 1 and 2 except for a larger number of leaves used. It measured 200 mm long, 130 mm wide with a circular entrance 60 mm diameter. Nestling WAM A26697; total length 122 mm; weight 18.5 g; iris brown; bill upper mandible slate, lower mandible whitish with a grey base and tip; gape yellow; mouth yellow; legs grey. Both adults were observed feeding the nestling.

**Nest 4.** Found on 4 February just west of Mertens Falls. In an area of heavily dissected sandstone boulders with scattered *Acacia*, *Ficus* and *Xanthostemon* and a ground cover of mainly *Triodia*. A fairly conspicuous nest built in top centre of a large green *Triodia pungeus*. This nest resembled a large slightly flattened dome, 160–170 mm long, 160 mm deep, circular entrance 45 x 40 mm (facing NW), interior 80 mm wide and 55 mm deep (egg cavity), spout like landing 130–140 mm long. It was made mainly of dry *Triodia* stems, dry leaves of *Acacia* and *Eucalyptus* bound tightly together with a number of *Triodia* stems extending from the entrance forming a landing and thickly lined with fine pieces of *Triodia* forming a hard base. It contained two fresh eggs; they were oval; 21.96 x 16.62 mm and 21.68 x 16.75 mm; smooth, pearly white slightly lustrous; sparsely spotted, speckled and blotched with blackish brown and chestnut brown mainly on larger end (but not forming a cap). Clutch set-marked 6/98 AO. See Figures 3 and 4.

**Nest 5.** WAM A 26793. Found on 4 February, just west of Mertens Falls, about 250 m from nest four in similar habitat. This nest was built in top of a large clump of *Triodia pungeus* and fine creeper growing on a sandstone ridge. The nest was 80 mm above ground and resembled a tightly woven dome, 190 mm high and 100 mm wide, entrance 55 x 40 mm, interior depth of egg cavity 75 mm. It was made of dry stems of *Triodia*, dry leaves of *Acacia*, *Ficus* and *Eucalyptus*, several green leaves of *Tiuospora smilacina* and lined with fine pieces of *Triodia*. There was no entrance landing. It contained two eggs; they were oval; 22.02 x 15.88 mm and 21.90 x 16.24 mm; smooth pearly white slightly lustrous; sparsely spotted, speckled and blotched with blackish brown, chestnut brown and with underlying markings of purplish grey mainly on larger end. Clutch set marked 7/98 AO. Figure 4.



Figure 3 Site of nest four of Black Grasswren, left to right A. Oakley (marking nest position), N. Kolichis and K. Oakley.

Nest 6. WAM A 26716. Found on 6 February near East Falls among heavily dissected sandstone boulders. Nest built in centre top of a large clump of *Triodia pungens* growing in crevice 2 m long x 60 cm wide between two sandstone boulders. This nest

shaped like a flattened oval, 220 mm long and 140 mm wide, internally 140 mm x 45–50 mm deep (egg cavity), entrance 50 mm wide with a short awning over top. It was made mainly of dry *Triodia pungens* stems, dry leaves of *Acacia* and *Eucalyptus*, dry tendrill like rootlets and lined with coarse dry leaves. It contained two eggs; they were long oval; 21.70 x 15.8 mm and 21.09 x 16.16 mm; smooth pearly white slightly lustrous; sparsely spotted, speckled and blotched with reddish brown and chestnut brown mostly on larger end forming a sparse cap. Clutch set marked 8/98 KO. Figures 4 and 5.

Nest 7. WAM A 26722. Found on 6 February near East Falls in sandstone area regenerating after fire. Female flushed from nest. Nest built in regenerating *Triodia* clump on side of a steep ridge above a watercourse. This nest a large lightly woven dome built 15 cm above ground in outer spines of *Triodia* and measured 165 mm long, 160 mm wide, internally 100 mm x 55 mm (egg cavity), entrance 50 x 40 mm. It was constructed of dry *Triodia* stems, fine rootlets and dry leaves of *Acacia* and *Eucalyptus* and lined with fine pieces of *Triodia* and rootlets. It contained two well patterned eggs they were; long oval; 22.27 x 15.74 mm and 21.22 x 15.61 mm; smooth, pearly white, slightly lustrous; spotted and blotched with blackish brown, purplish brown and brown, mainly at larger end forming an irregular zone or cap. Clutch set marked 9/98 KO.

Nest 8. WAM A 26723. Found on 4 February with female sitting but empty and not collected until 7 February when female flushed but nest still empty. Nest built 50 cm above ground in a large *Triodia pungens* clump entangled with fine prickly creeper, growing in a crevice between sandstone boulders. It was well concealed and more typically dome shaped 320 mm long and 120 mm wide, internal nest chamber 80 mm deep, entrance 50 x 40 mm

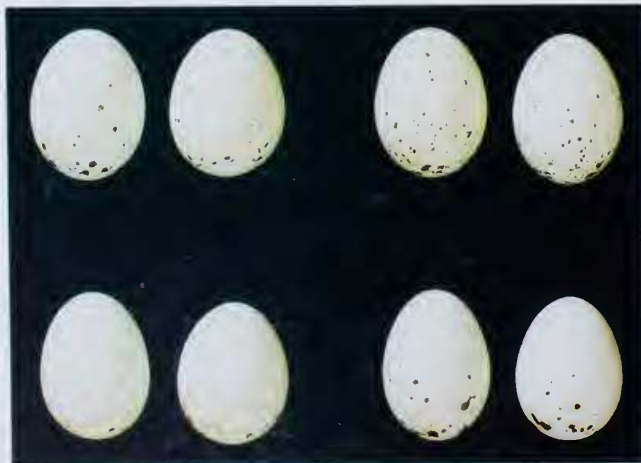


Figure 4 Four clutches of Black Grasswren eggs. Type clutch top right.

(facing SE). Constructed mainly of dry *Triodia* stems, dry leaves of *Acacia* and *Eucalyptus* and dry tendrils of rootlets, and lined with dry leaves and fine pieces of *Triodia*. Several *Triodia* stems were bent over forming a landing at entrance.

**Nest 9.** Found on 8 February about 500 m east of Mertens Falls among small sandstone boulders and green regenerating *Triodia*. This nest a conspicuous flattened oval shape 200 mm long and 155 mm wide, internal cavity 165 mm and 60 mm deep (egg cavity), entrance 75 x 60 mm (facing SE), spout shaped landing of *Triodia* stems 160–165 mm long. Nest materials were similar to other nests.

**Nest 10.** Found on 8 February near camp on Mertens Creek in area of jumbled sandstone with sparse *Triodia* and scattered *Ficus*. Pair were observed here on 6 February. This nest was complete and ready for eggs. It was built in a small *Triodia* clump on a flat sandstone boulder. Nest a typical dome, 170 mm long and 115 mm wide, with internal nest cavity 90 mm wide and 70 mm deep, entrance 75 mm wide (facing S) and with a very long 300 mm spout like landing of *Triodia* stems bound into the base of the nest. Nest materials similar to other nests including dry *Triodia* stems, dry leaves and rootlets, and lined with fine pieces of *Triodia*.



Figure 5 Nest 6 of Black Grasswren A26716. Drawn by Danielle West.



Figure 6 Nest 9 of Black Grasswren, a very conspicuous nest in regenerating *Triodia*.

#### STATISTICAL SUMMARY OF NESTS

The location, direction nest entrance faced and measurements of nests 1–10 are summarised in Table 1. The measurements taken are shown in Figure 7.

#### DISCUSSION

The Black Grasswren breeds during the austral summer (wet season), laying from December to March. It also appears, based on juveniles observed during this and other surveys, that they may also respond to local heavy rains, possibly breeding as late as May in some areas. Their nests are large, bulky structures ranging from dome shaped to flattened oval and are constructed mainly of interwoven *Triodia* stems, leaves and rootlets and lined with dry leaves and fine pieces of grass. The thick walls provide protection from the heavy rain and most nests also had a spout-like landing at the entrance. No consistency was evident in the choice of nest site. Nest sites varied from being well concealed and protected in dense clumps of *Triodia* between sandstone boulders, to very conspicuous placed among the top stems of *Triodia* clumps. A

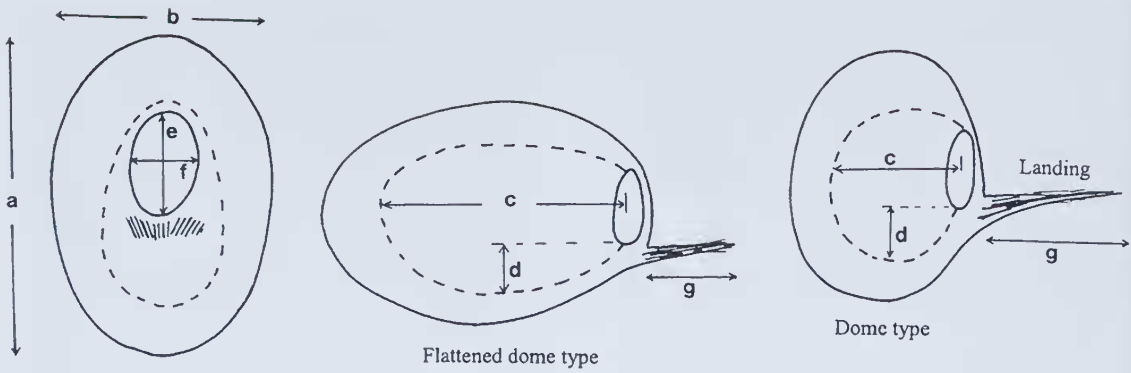


Figure 7 Schematic front (left) and side (right) profiles of Black Grasswren Nests to show parameters measured, and presented in Table 1: a = nest height-length; b = nest width; c = nest chamber width; d = nest cavity depth; e = entrance depth; f = entrance width; g = landing length.

Table 1 Nest number, direction entrance faced, height above ground and measurements (mm) as indicated in Figure 7 of ten nests of *Amytornis housei*.

Nest No	Nest entrance faced	Height above ground	a	b	c	d	e	f	g
1	W	400	195-200	130	160	70	70	60	140
2	NW	300	240	130	130	50	55	55	-
3	-	500	200	130	-	-	60	60	-
4	NW	-	160-170	160	80	55	45	40	130-140
5	N	80	190	100	-	75	55	40	-
6	-	-	220	140	140	45-50	50	50	-
7	-	150	165	160	100	55	50	40	-
8	SE	50	320	120	80	80	50	40	100-150
9	SE	200	200	155	165	60	75	60	160-165
10	S	300	170	115	90	70	75	75	300

number of nests had one or more old nests adjacent or within a few metres indicating that birds use the same area over subsequent seasons and build a new nest every year. Nests were found among huge jumbled boulders and in less rugged more open situations.

Judging from our observations only the female incubates and broods, leaving the nest in early morning (and possibly also at dusk) to feed with the male. When incubating she sits quite tightly at the approach of danger often only flushing if the clump or nest is touched. Both parents were observed feeding nestlings and fledged young. Both parents also were observed in rodent-runs, with wings open and partly dragging and tail lowered and spread, performed when intruders were close to nests with nestlings or to fledglings.

During the breeding season males were very noisy calling from tops of boulders, signalling position, usually with the female nearby giving contact calls. The males' territorial song often eliciting a quick response from neighbouring pairs. Territorial disputes are common sometimes

bringing several pairs together with noisy chattering. An indication of relative abundance of the birds can be judged from a total of 16 pairs that were counted in a 2 km transect following a narrow band (50-60 m wide) of sandstone fringing a creek south-west of Mertens Falls. After breeding the family unit appears to stay together and may unite with other groups from adjacent areas.

The nest of the Black Grasswren is similar in shape, construction and materials to that of the White-throated Grasswren *Amytornis woodwardi* of Arnhem Land, Northern Territory. Nests of *A. housei* ranged in size from 160-320 mm high or long x 100-160 mm wide with entrance 45-75 x 40-75 mm. The single nest of *A. woodwardi* described by Schodde (1982) measured 160-180 mm high x 120-140 mm wide with entrance 40-50 mm.

In size the eggs of *A. housei* are also similar to those of *A. woodwardi* ranging from 21.0-22.2 mm long x 15.6-16.7 mm wide (mean 21.7 x 16.0) compared to a clutch of two of *A. woodwardi* 22.3-22.5 x 15.6-15.9 mm. In colour however the eggs of *A. housei* are the least marked of all *Amytornis* being

most like the very sparsely marked clutches of the Eryean Grasswren *A. goyderi* and considerably less marked than the single clutch of *A. woodwardi*. As a group *A. housei*, *A. woodwardi*, *A. dorotheae* and *A. goyderi* have poorly marked eggs whereas *A. barbatus*, *A. purnelli* and *A. textilis* have more extensively patterned eggs.

#### ACKNOWLEDGEMENTS

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